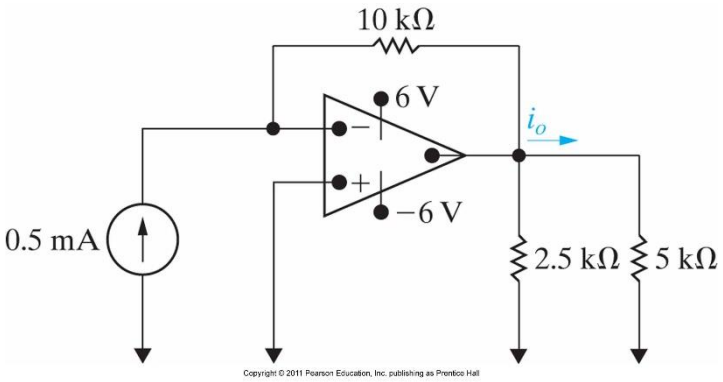
EE 201 – CIRCUIT THEORY I
Homework #3
(Due: 16.11.2026 in Midterm)

1. The op-amp in the circuit in figure below is ideal.

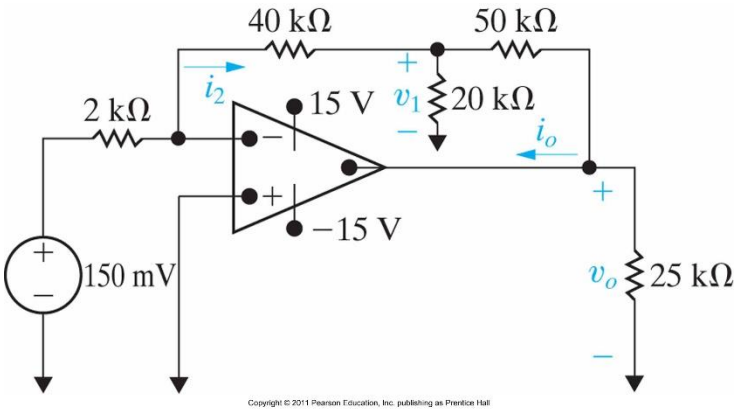
a) Find i_0.

b) Find the power absorbed by the resistors.



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2. The op-amp in the circuit in figure below is ideal. Calculate the v_1, v_0, i_0, i_2

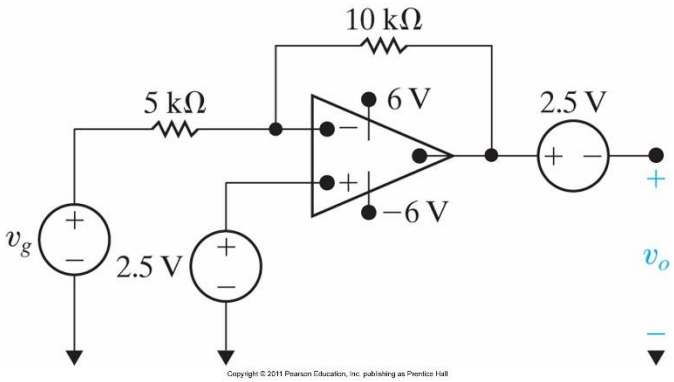


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3. A circuit designer claims the circuit in figure below will produce an output voltage that will vary between $\pm 5V$ as v_g varies between 0 and 5 V. Assume the op-amp is ideal.

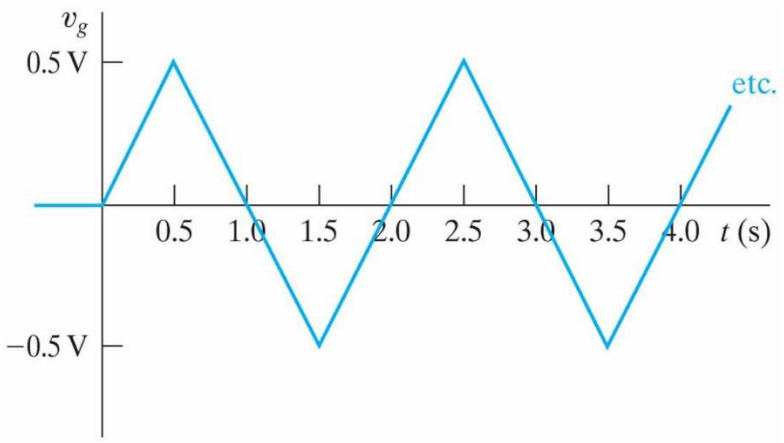
a) Draw a graph of the output voltage v_0 as the function of the inp. voltage v_g for $0 \leq v_g \leq 5\ V$

b) Do you agree wth the designer's claim?

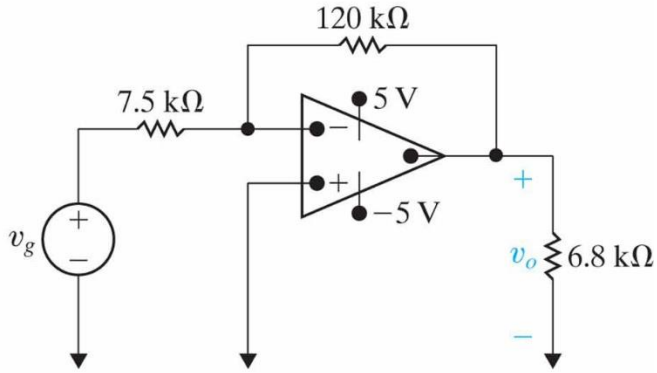


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4) The voltage v_g is applied to the inverting amplifier shown in figure below. Sketch v_0 vs t, assuming the op-amp is ideal.



(a)



(b)

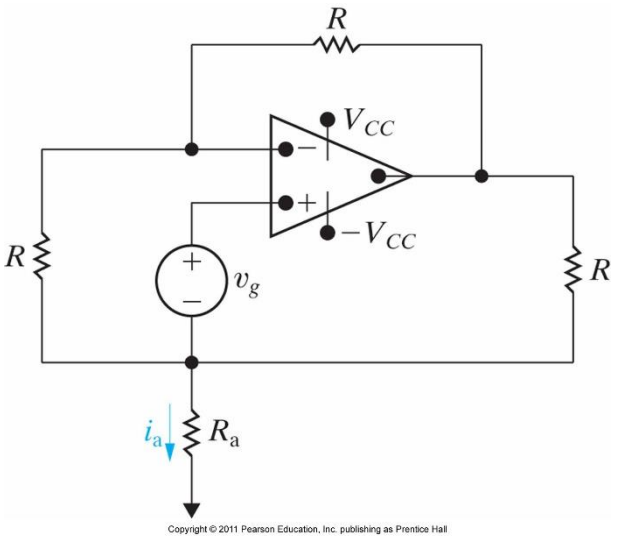
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5) In the circuit below (assume the op-amp is ideal)

a) Show that when the op-amp is operating in linear region, $i_a = {}^{3v_g}/_{R}$

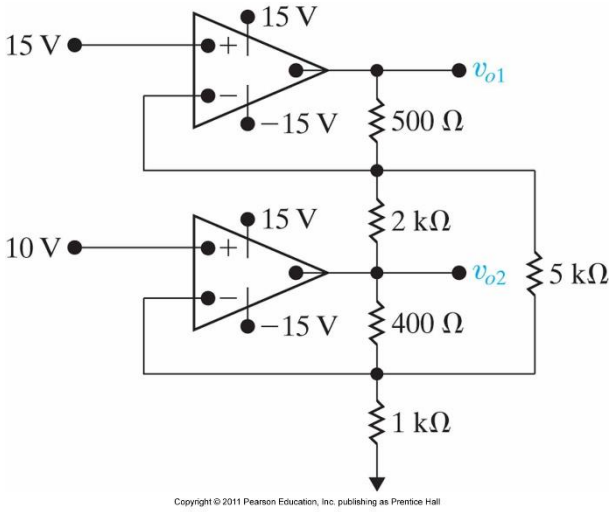
b) Show that the op-amp will saturate when

$$R_a = \frac{R(\pm V_{cc} - 2v_g)}{3v_g}$$



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6) Two op-amps in the circuit below are ideal. Calculate v_{0_1} and v_{0_2}



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- They give idea about the exams.
- It is advised to you solving that questions before the exams by yourselves.